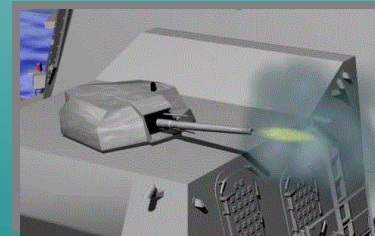
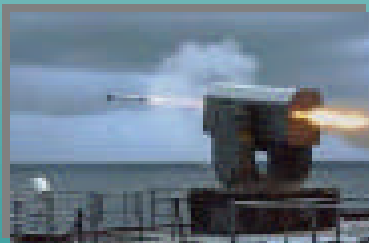
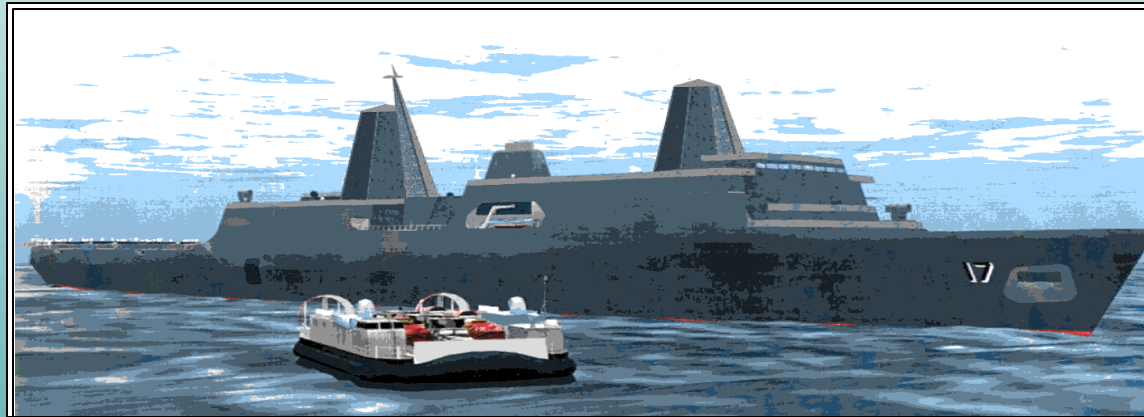




LPD 17



First Of Its Class



NDIA
4 November 1998





Program Snapshot



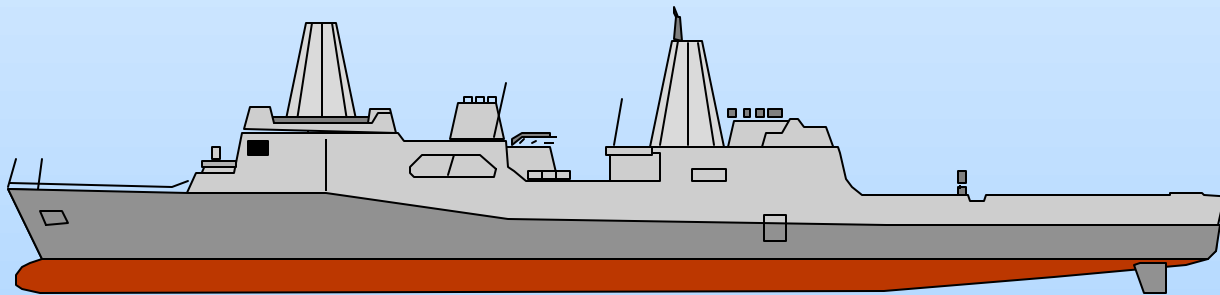
- ★ • Acquisition Reform In Action
- ★ • Innovative Products and Processes For Naval Shipbuilding
- ★ • Leveraging Navy/Industry Teaming
 - Program Office co-located with Avondale Alliance
- ★ • Making Excellent Progress



Program Snapshot



- ★ • 12 Ships
- ★ • Lead Ship Contract Awarded 12/96
 - Two Follow Ship Options
 - Lead Ship Delivers 11/02



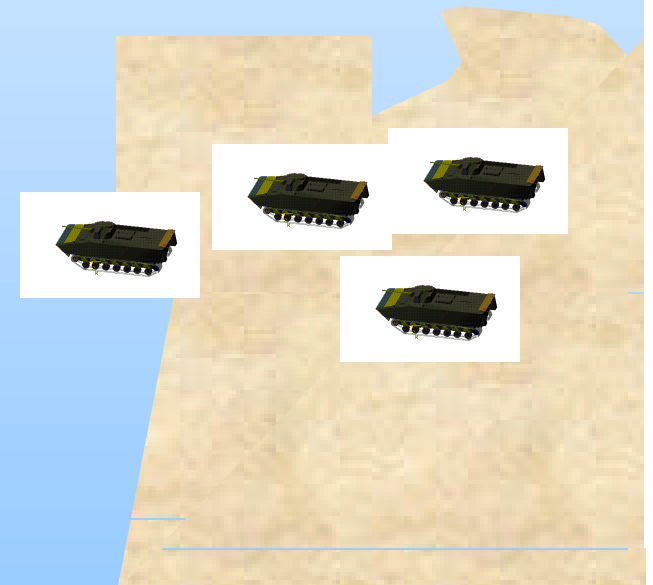
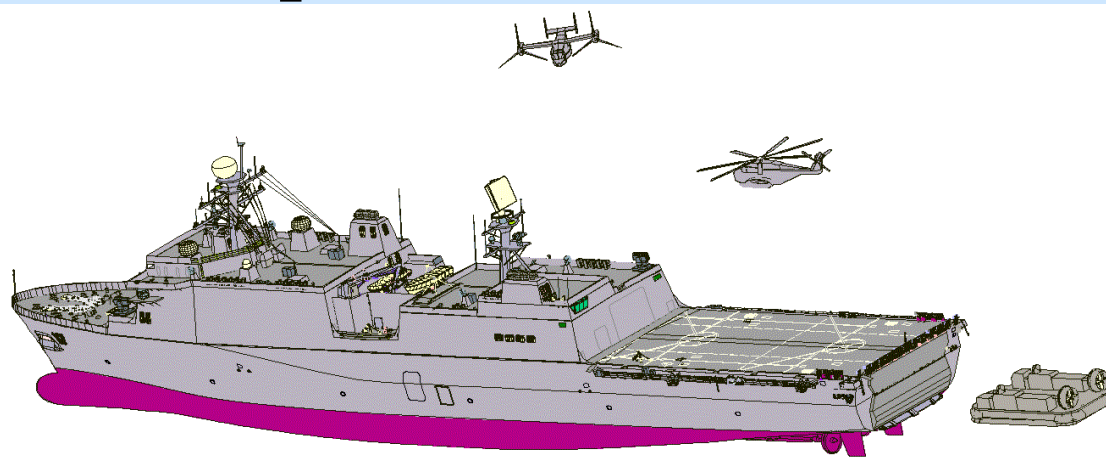
- ★ • 12th Ship Delivers FY09
- ★ • 40 Year Ship Service Life



Requirements



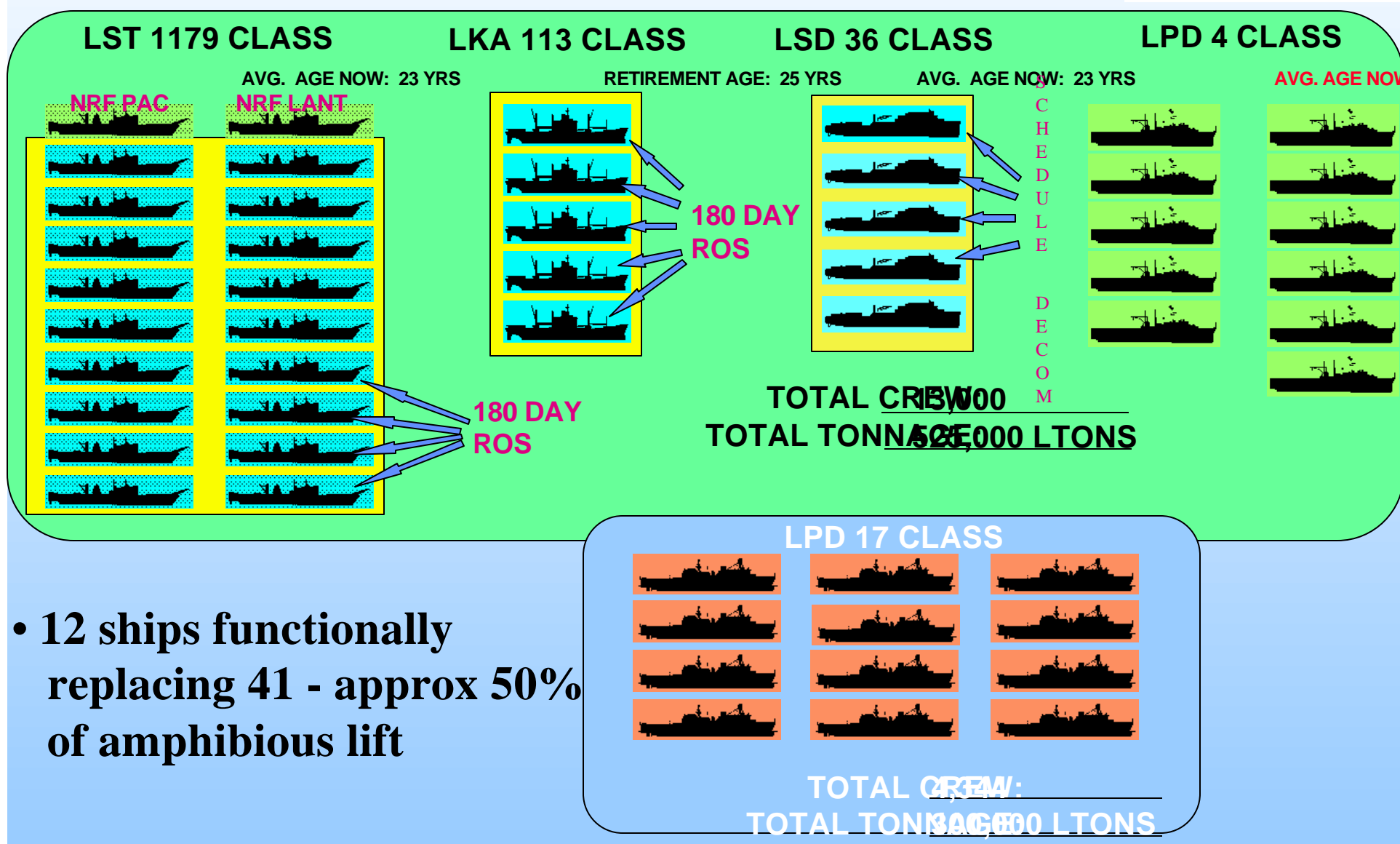
★ **Mission:** *To embark, transport, and land elements of a Landing Force in an assault by helicopters, landing craft, and amphibious vehicles.*



**Ships Required to Meet 2.5 MEB
Fiscally Constrained Lift Goal**

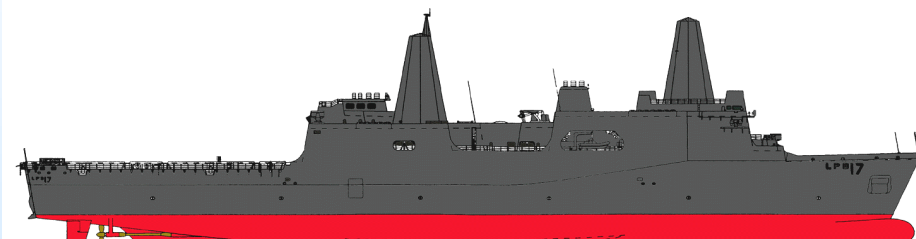


LPD 17 Will Replace





LPD 17 is...



GENERAL CHARACTERISTICS

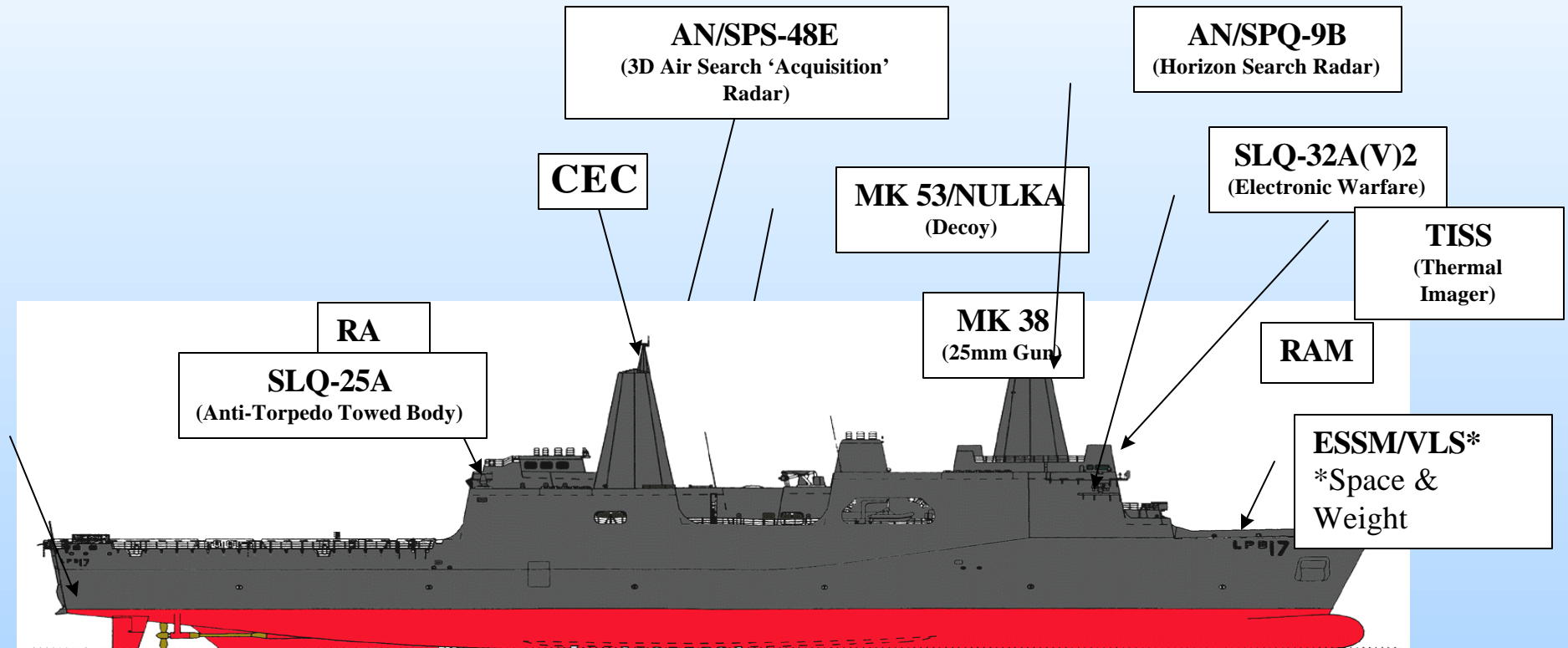
LENGTH (LOA)	208.4 M (684 FT)
BEAM (MAX)	31.9 M (105 FT)
DRAFT	7.0 M (23.0 FT)
DISPLACEMENT (FLD)	25.3K MT (24.9K LT)
PROPULSION	4 MED SPEED DIESEL
SHAFT POWER	40K HP
SUSTAINED SPEED	22+ knots

MISSION CHARACTERISTICS

VEHICLE AREA	2.32K M ² (25K FT ²)
CARGO VOLUME	1007 M ³ (36K FT ³)
TROOPS	720
LCAC	2
AVIATION- LAND	4-CH46, 2-CH53E or 2 MV22
HANGAR	2-CH46, 1-CH53 or 1-MV 22
MEDICAL	CRTS with augment (24 BEDWard/ICU & 2 Ors)

Schedule	FY	97	99	00	01	02	03	04	05	06	07	08	09	Total
Award		1	1	2	2	2	2	2						12
Delivery							2	1	2	2	2	2	1	12

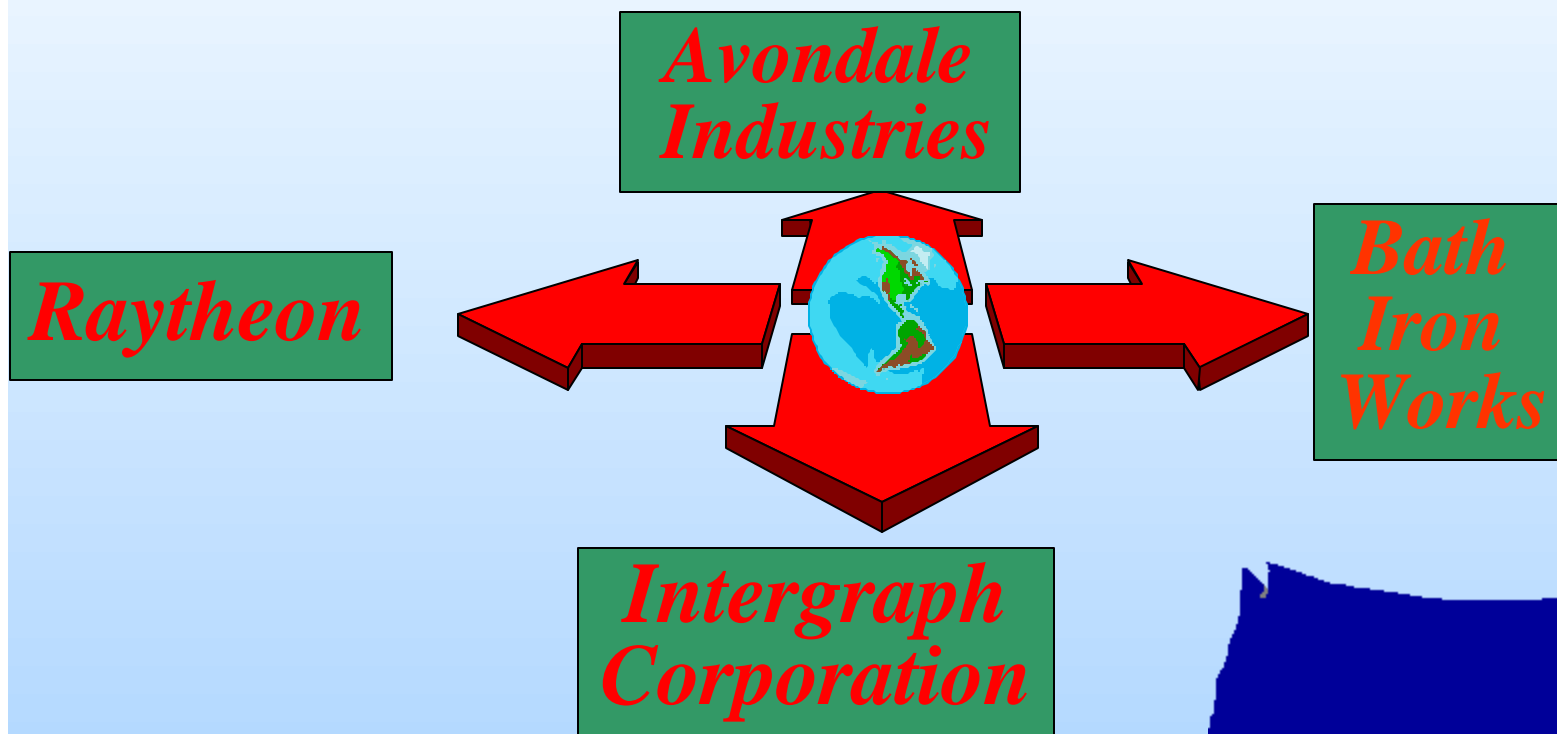
Combat Systems and Survivability



- **Low Radar Cross Section**
- **Collective Protection System (4 Zones)**
 - CBR (Chemical, Biological, Radiological) survivability
- **Anti-Whipping Structure**
 - Mine/Torpedo survivability
- **Blast Hardened Bulkheads**
- **Shock Hardening**

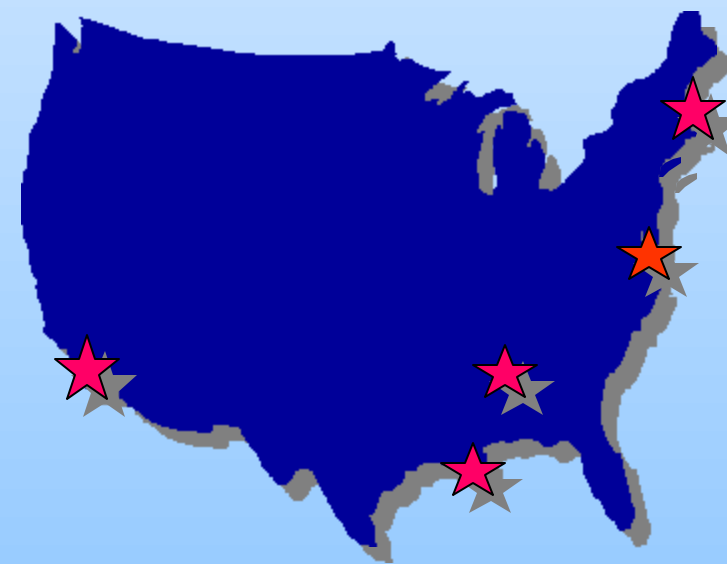


"The Team in Place"



Navy Program Management

- Team 17 located at Avondale
- War Room at Little Creek



The Avondale Alliance



Avondale Industries, Inc.

- Prime Contractor/FSC
- Hull and Below Deck Design
- Builds 8 ships

Intergraph Corporation

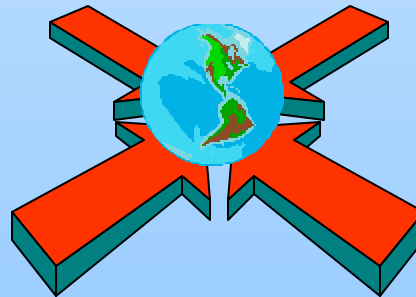
- IPDE Infrastructure/Software
- IPDE Support and Developmental Configuration

Bath Iron Works

- Topsides Design/Integration
- Builds 4 ships

Raytheon

- Total Ship System Integration
- SWAN Development
- GFE Integration



The TEAM



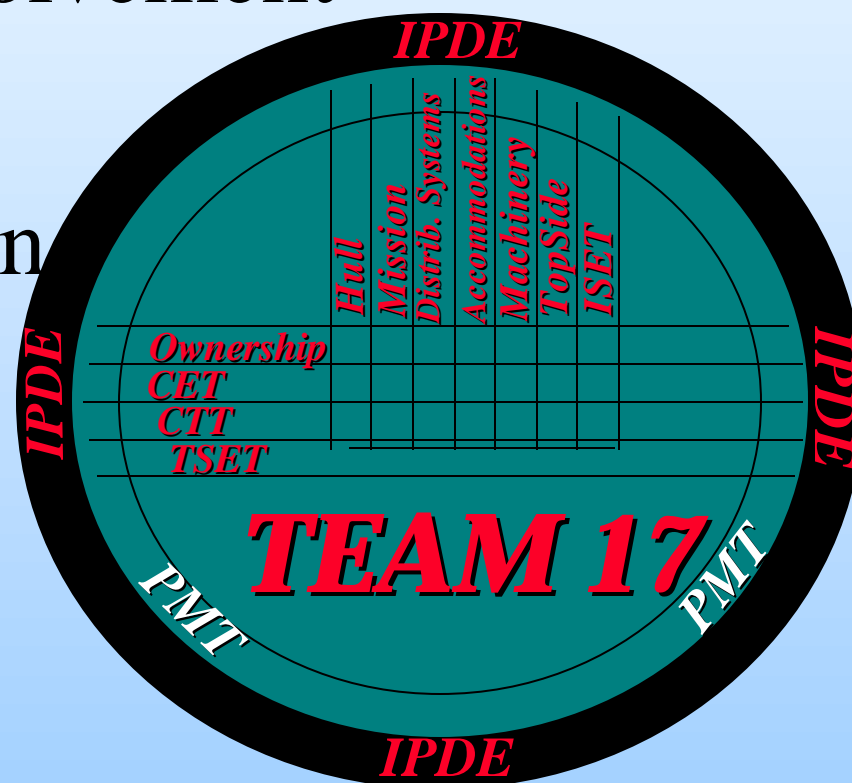
IPDD Integrated Product Process Development



★ Early Problem Solving through
Interactive Team Involvement

★ Government-Industry
Collaborative Decision
Making

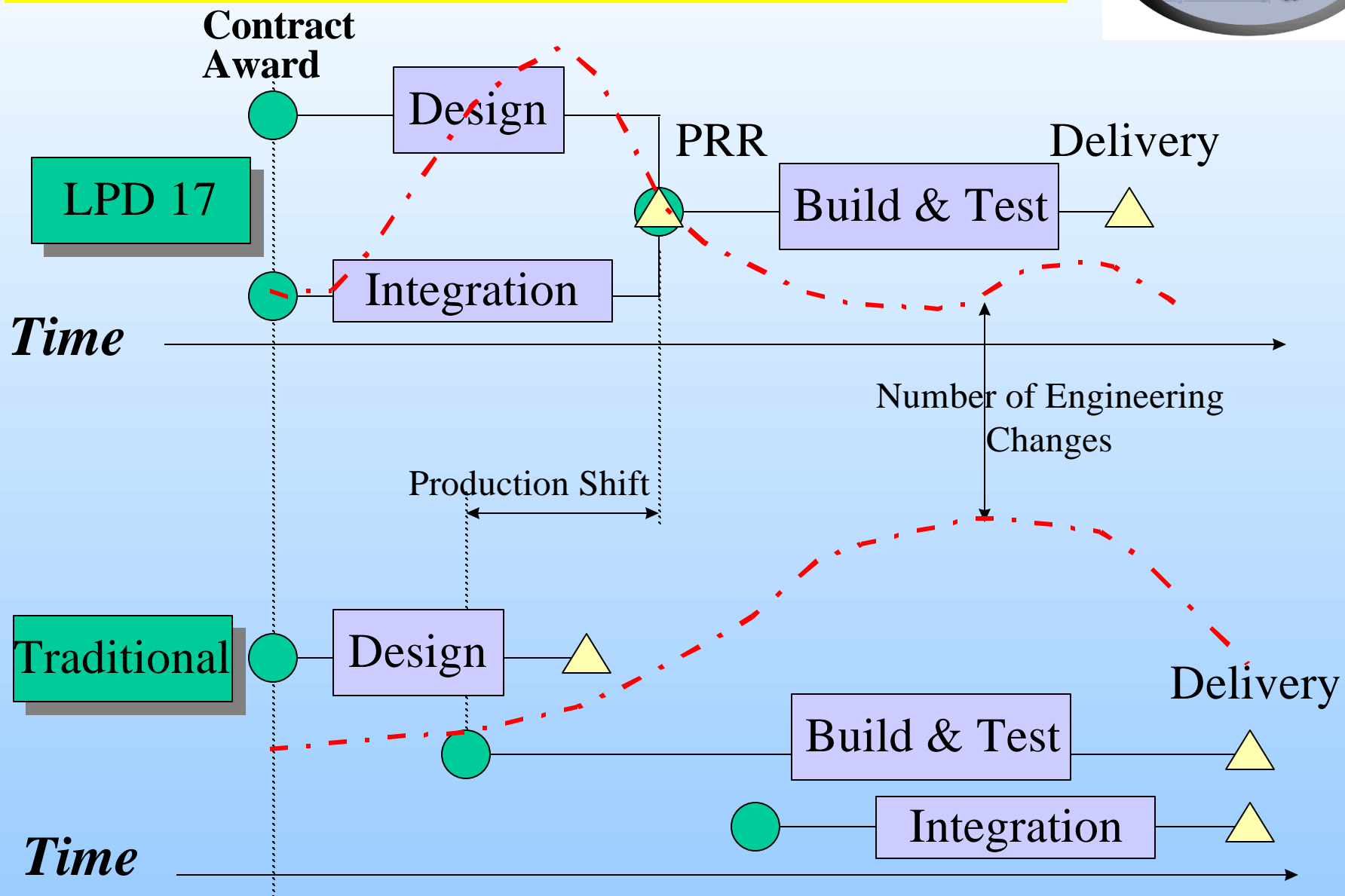
- ★ Management Approach
- ★ Multi-Discipline
- ★ Consideration of all
“View Points”



“Enables Concurrent Engineering”



LPD 17 Concurrent Engineering

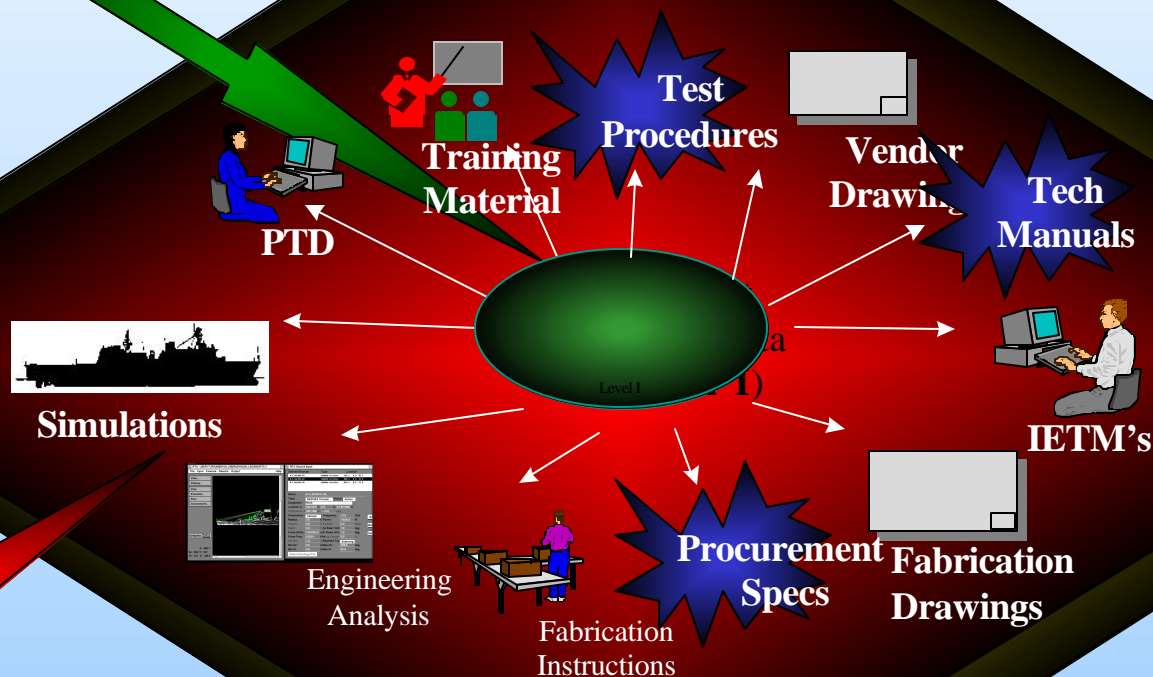




IPDE Concept: Electronic Development and Re-Use of Data



Level I - Product Model Data



Level II - Support Data

Level III - Program Execution Data



UNO / Avondale Center of Excellence



First Floor

- Test and Integration Facility (ATIF)
- UNO School of Naval Architecture
- Full Size Physical Mockup Area
- 96 Workstations

Second Floor (TEAM 17)

- 368 Workstations
- 2 File/Print Rooms
- 17 Team Rooms
- 1 EVS Room

Third Floor

- Reserved for Future Expansion

Fourth Floor

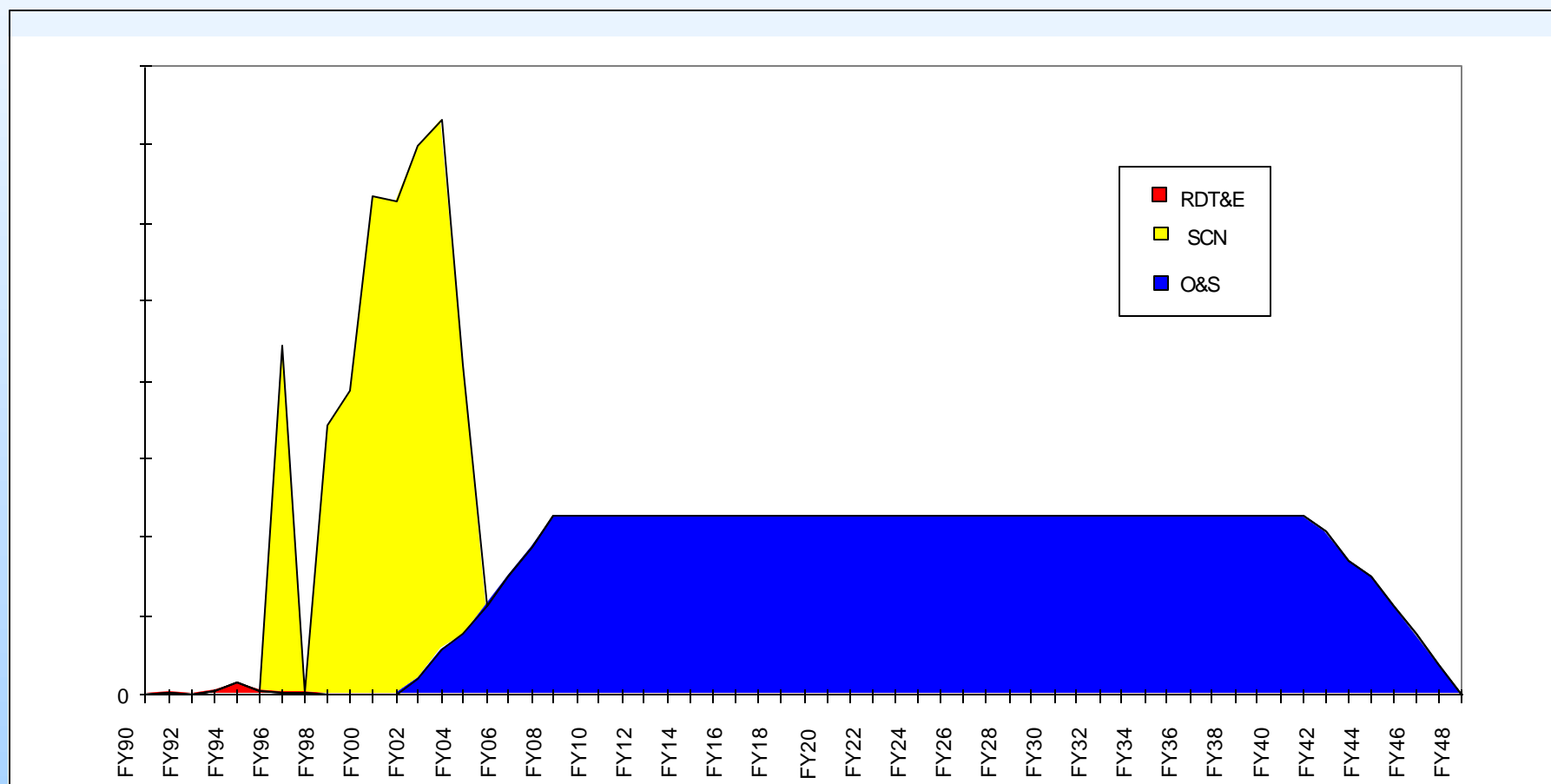
- Avondale's IPDE Technology Division
- 9 Training/Conference Rooms
- 60-seat Amphitheater



TEAM 17 Workspace



LPD 17 Total Ownership Cost



RDT&E = .27%

SCN = 33.24%

O&S = 66.48%

TOC Mandate: Attack O&S Cost Drivers

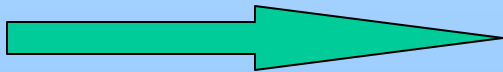
What is LPD 17 TOC Avoidance



Teaming

Tools

Training



Total Progress to Date > \$2.5B



Design for Ownership



- Fleet/FMF Issues -
 - 89 Items in Govt review as potential design changes
 - 52 Approved or implemented as design changes
- LPD 17 Web Page
- DFO Conferences/Workshops - 39
- FLAG Briefs to TEAM 17 - 8
- Dedicated War Room at EWTGLANT



Knowledge-Based Engineering So

DFO Input to LPD 17 Design - CIC and TOLC



**Four Warfighter and Ship Designer IPTs
and Marine Focus Group arranged
spaces - Final Validation in Oct 98**



- ◆ • Separate but equal situational awareness
- ◆ • Proposed new joint mission planning space
- ◆ • Smart bulkhead between CIC and Troop Spaces for common flexibility and access






DFO and TOC Together - No Old Paradigms



 Fleet/Marine Corps design of CIC and Troop Ops in direct response to **O'Grady** rescue team

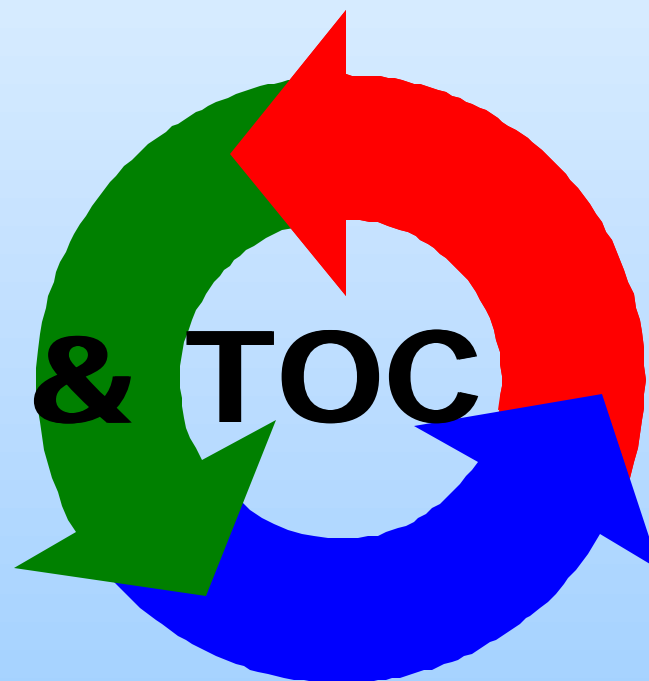
 Right -sized Diesel Generators

 Sit-up Berths for Troops and Crew alike

 No HP Air

 Advanced Enclosed Mast/Sensor

DFO & TOC



Marine Partnership in LPD 17 Design



- Marine Officer assigned to PMS 317-
CAPT Tim Booth
- Participation in Design For Ownership process
 - *Attendance at Workshops*
 - *100+ Marine Related LPD 17 Database Issues*
- Feedback via LPD 17 Marine Day
(Aug 95, Aug 96, Dec 97)

-





Marine Related Design Efforts



- Added aviation ordnance space to support TOW missile buildup and enhance Cobra cross decking

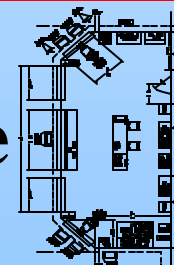


- New Cargo storeroom for POL added; Cargo Ammo Magazine #3 changed to support LFORM

- Working with AAV and MV 22 Programs for Compatibility/Interface



- Cooperative Design of Well Deck Control/Combat Cargo Assistance space



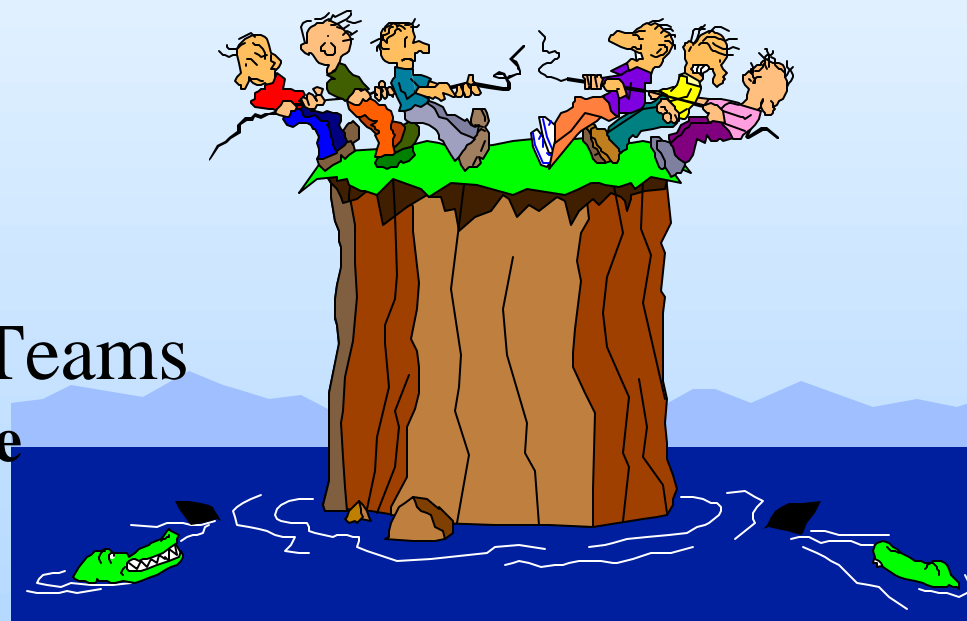


Teaming Smarter

Lessons Learned (To Date!)



- **Align Expectations**
 - Contract Specifications
 - Team Goals
 - Customer Expectations
- **Prepare for Teaming of Teams**
 - Organizational Allegiance
 - Team Dialects
- **Recognize Teams Still Need Leaders**
 - Direction
 - Decisions
 - Closure



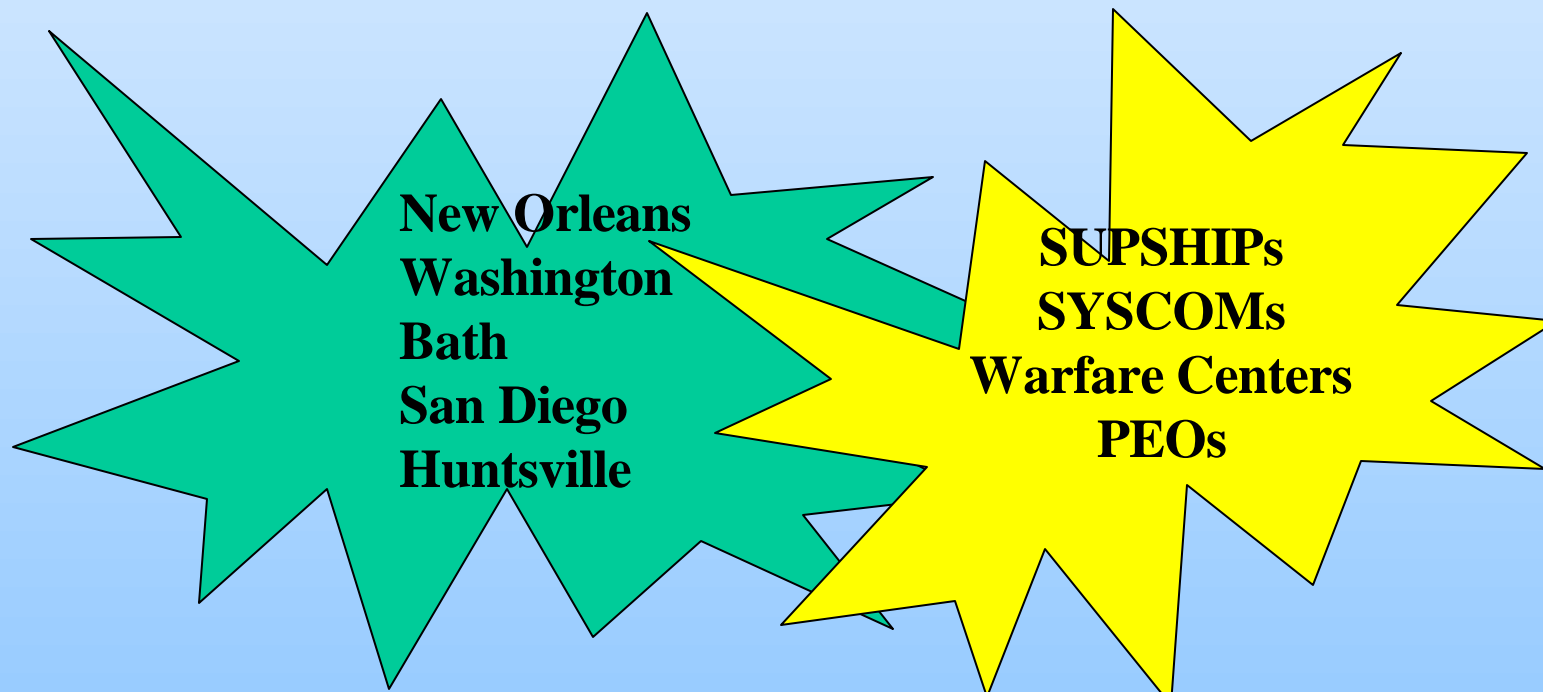


Teaming Smarter

Lessons Learned (To Date!)



- Carve Out Training Time to Blend Cultures
 - Share Perspectives
 - Understand Customers
- Consider Training and Executing Simultaneously
 - Put Teams to Work Earlier
 - “Stress” Teams - Identify Shortcomings Earlier

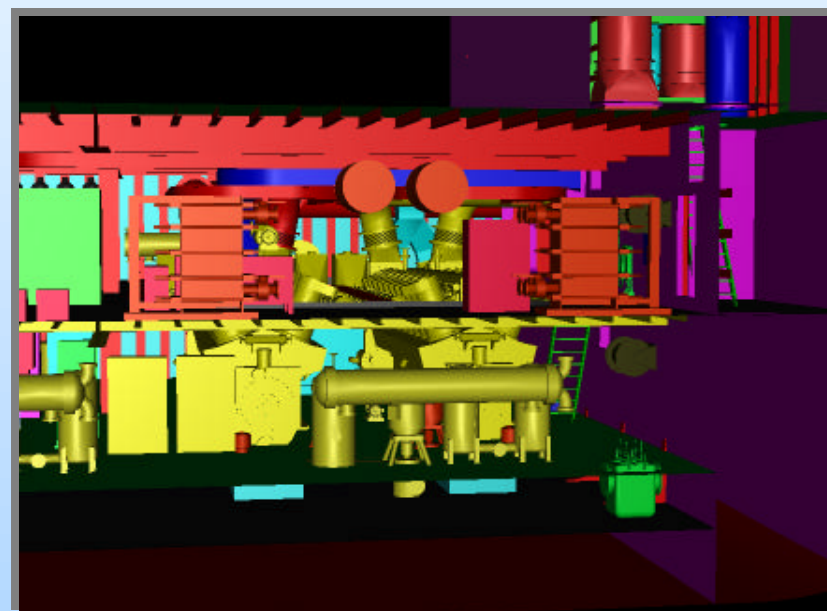




LPD 17 Design



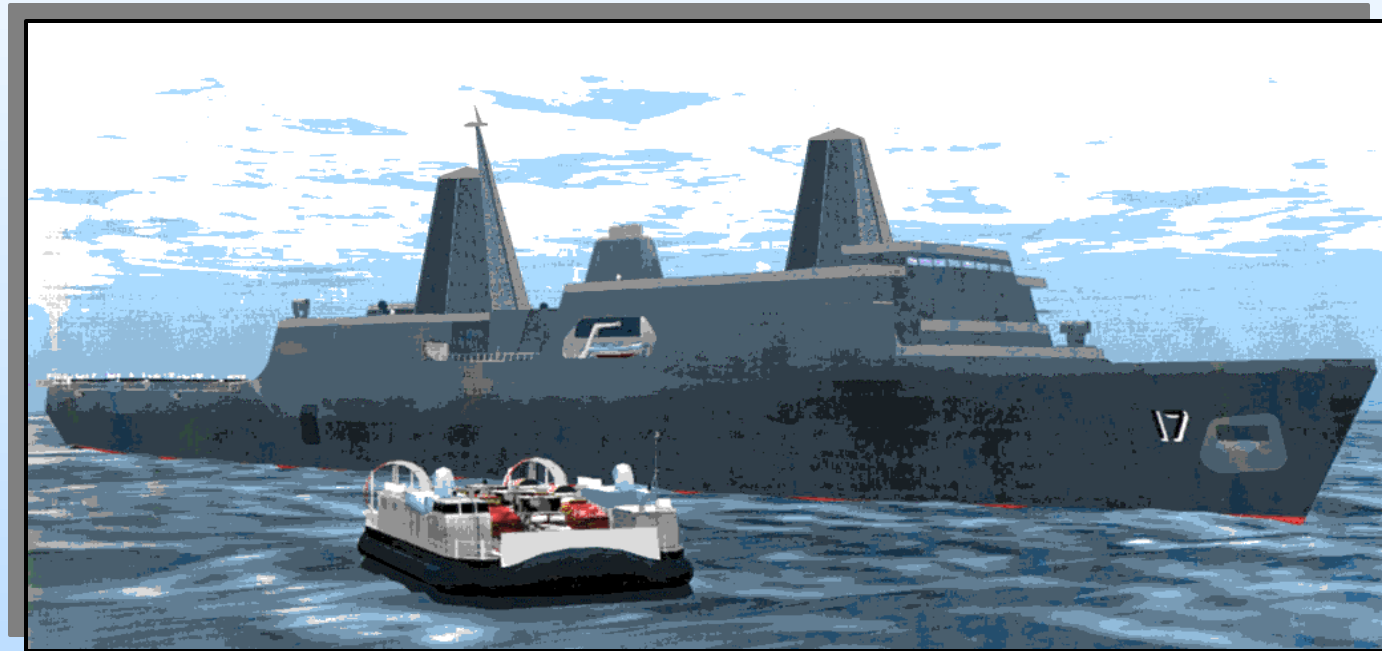
- 60% Through Detail Design Phase → Cut Steel 8/99
 - Major Structure Defined
 - Well Into Systems Design
 - Initial Space Arrangements
- Design “Window For Change” Rapidly Closing
 - 3-D Modeling Underway
 - Configurations Being Finalized



**Team Approach Greatly Improving
LPD 17 For the Navy/Marine Customer**



Summary



Warrior-focused Design

- Urgent Fleet Need**
- Aggressive Total Ownership Cost Reduction**
- Right Ship at The Right Time**